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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/677,941	10/01/2003	Jae-Hyuk Eoh	03-621	9725
34704	7590	03/02/2006	EXAMINER	
BACHMAN & LAPOINTE, P.C. 900 CHAPEL STREET SUITE 1201 NEW HAVEN, CT 06510			PALABRICA, RICARDO J	
			ART UNIT	PAPER NUMBER
			3663	

DATE MAILED: 03/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/677,941	Applicant(s) EOH ET AL.	
	Examiner Rick Palabrica	Art Unit 3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) 6-8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's 1/23/06 Amendment, which amended the Abstract, directly amended claims 2 and 5, submitted replacement drawings (i.e., Figs. 9 and 10), added new claim 9, and traversed the rejection of claims in the 8/26/05 Office action, is acknowledged.

The replacement drawings are accepted.

2. Applicant traversed applied prior art, Hundal et al., on the ground that they do not disclose a "sodium-sodium heat exchanger that is deposited at a position higher than a liquid level of the sodium in the cold pool under normal steady-state conditions so as not to come in contact with the cold pool." The examiner disagrees.

Hundal et al. disclose two embodiments each having a sodium-to-sodium heat exchanger located at the position recited in claim 1 (see heat exchanger 70 in Fig. 1 and heat exchanger 70 in Fig. 3A). As stated in section 6 of the 8/26/05 Office action, Hundal et al. disclose a cool sodium pool 40 that is depicted in both Figs. 1 and 3A. Note that their heat exchanger 70 is very clearly shown to be at a level higher than cold pool 40. As further evidence of the claimed deposition of said heat exchanger, see Abstract, which states: "the auxiliary heat exchanger is placed in this annular space just above the drawn-down level that the liquid sodium assumes during normal operations". Underlining provided. See also col. 3, lines 55+.

3. Applicant individually traversed applied prior art, Sharbaugh, Schenewerk and Jogand. Note, however, that the examiner applied each of these references, in

combination with another reference, in the rejection of claims. It is has been well settled that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant has not shown that the references do not teach what the examiner has stated they teach, nor, has the applicant shown that the examiner's reasoning for and manner of combining the teachings of the references is improper or invalid.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim recites the limitation "the heat removing sodium loop" in line 4. There is insufficient antecedent basis for this limitation in the claim.

The term "upper end" in the claim is a relative term which renders the claim indefinite. The term "upper" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by any one of Hundal et al. (U.S. 4,780,270)

The reasons are the same as those stated in section 6 of the 8/26/05 Office action, as further clarified in section 2 above, which reasons are herein incorporated.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over any one of Sharbaugh (U.S. 4,762,667) or Schenewerk (U.S. 4,367,194) or Jogand (U.S. 4,115,192) in view of Hundal et al.

The reasons are the same as those stated in section 7 of the 8/26/05 Office action, as further clarified in sections 2 and 3 above, which reasons are herein incorporated.

7. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jogand (U.S. 4,115,192) in view of Hundal et al.

The reasons are the same as those stated in section 8 of the 8/26/05 Office action, as further clarified in sections 2 and 3 above, which reasons are herein incorporated.

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable either one of Hundal et al. or the combination of Jogand and Hundal et al. These references have been discussed above.

The reasons are the same as those stated in section 9 of the 8/26/05 Office action, as further clarified in sections 2 and 3 above, which reasons are herein incorporated. The reasons still apply to the amended claim language.

9. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jogand in view of Hundal et al.

Hundal et al. has been discussed above. See also the discussion in sections 2 and 3.

Applicant's claim language reads on Jogand's embodiment shown in Fig. 2 as follows: a) "sodium-sodium heat exchanger with a U-shaped heat transmitting units" reads on auxiliary heat exchanger 50 (see also col. 4, lines 18+); b) "cold sodium downcomer" reads on pipe 57, 58; c) "plurality of heat transmitting tubes" reads on manifolds 53 and 55; d) "heated sodium collector" reads on pipes 59, 60. Pipes 57, 58

convey cold sodium to the auxiliary heat exchanger 50, and they inherently have an end (that reads on claim language "upper end"), which is connected to an expedient for a heat-removing, sodium loop.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick Palabrica whose telephone number is 571-272-6880. The examiner can normally be reached on 6:30-5:00, Mon-Thurs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RJP
February 22, 2006

A handwritten signature in black ink, appearing to read "R. Paladino". The signature is written in a cursive, flowing style with a large initial "R".